

**FREQUENCY HOPPING SPREAD SPECTRUM SYSTEM
WITH HIGH SENSITIVITY TRACKING AND SYNCHRONIZATION
FOR FREQUENCY UNSTABLE SIGNALS**

ABSTRACT OF THE DISCLOSURE

A wireless spread spectrum communication system for transmitting data includes a plurality of end point transmitters and at least one receiver. The end point transmitters transmit data via a frequency hopped spread spectrum signal where the transmitting signal is sent without the benefit of frequency stabilization. The receiver is responsive to the frequency hopping spread spectrum signals and includes a correlator and a signal processor. The correlator samples at least a first portion of a preamble of the signal and correlates the portion of the preamble with a known preamble pattern to determine a probability of correlation. The signal processor applies a Fast Fourier Transform algorithm to the signal in response to the probability of correlation to track a narrowband frequency of the signal based on at least a second portion of the preamble and to decode data encoded within the signal subsequent to the preamble.